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Deprescribing: a UK General Practice perspective

Polly Duncan¹, Martin Duerden², Rupert Payne¹

1. Centre for Academic Primary Care, University of Bristol, UK
2. Centre for Health Economics and Medicines Evaluation, Bangor University, UK

Corresponding author

Dr Rupert Payne
Consultant Senior Lecturer in Primary Health Care
Centre for Academic Primary Care
School of Social and Community Medicine
University of Bristol
Canynges Hall
39 Whatley Road
Bristol BS8 2PS
Tel: 0117 3314545
Email: r.payne@bristol.ac.uk

Abstract

Polypharmacy is an increasing and global issue affecting primary care. Although sometimes appropriate, polypharmacy can also be problematic leading to a range of adverse consequences. Deprescribing is the process of supervised withdrawal of an inappropriate medication, and has the potential to reduce some of the problems associated with polypharmacy. It is a complex and sensitive process. We examine the issue of deprescribing from the perspective of UK general practice.

Key steps in the deprescribing process are a review of medications and corresponding indications, consideration of harms, assessment of eligibility for discontinuation, prioritisation of medications, and implementation of a stopping plan with appropriate monitoring. Patient involvement is a key feature of this process. Deprescribing should be considered in the context of end of life care and medication safety, but approaches are also required to identify other situations where deprescribing is appropriate. GPs are well positioned to facilitate deprescribing, usually through formal medication review, with decisions informed by a range of other health care professionals. Guidelines are available which help guide these processes. A range of studies have explored attitudes towards deprescribing; patients are generally supportive of the concept, although clinician views are varied. The successful implementation of deprescribing strategies still requires important patient and clinician barriers to be overcome, and clinical trial evidence of effectiveness and safety are essential.

Introduction

Deprescribing is “the process of withdrawal of an inappropriate medication, supervised by a health care professional with the goal of managing polypharmacy and improving outcomes”.¹ This is particularly relevant to patients with polypharmacy (the prescription of multiple medications) because the risk of harm caused by medication increases with the number of medications a patient is prescribed.² Stopping or reducing medications requires careful clinical consideration, with a need to balance issues such as potential loss of clinical benefit and increased patient anxiety, against reductions in medication errors, adverse reactions and prescribing burden. To reflect these complexities and sensitivities the term ‘deprescribing’ has been adopted rather than simply stopping medicines. This requires similar levels of skill to prescribing in the first place.

This narrative review examines the issue of deprescribing from the perspective of UK general practice. In the UK, the general practitioner (GP) is the first point of contact with the health service for most patients, and gatekeeper to specialist services. Virtually all UK residents are registered with a GP as part of the state-funded National Health Service, and the management of long-term conditions, including prescription of long-term medications, is mostly managed in this setting.

The purpose of this review is to: (i) describe trends in polypharmacy and explanations for why it is increasing; (ii) outline the harms associated with over-treatment; (iii) outline the rationale for deprescribing and different approaches to deprescribing within general practice, including the role of the pharmacist; (iv) outline the barriers and enablers to deprescribing; and (v) make recommendations for future practice.

Trends in polypharmacy

Polypharmacy is a global issue, affecting developed and developing nations (Table 1). The prevalence of polypharmacy within the UK is increasing – in Scotland the proportion of patients prescribed five or more medications doubled to 20.8% from 1995 to 2010, and the proportion prescribed ten or more medications tripled to 5.8% over the same period (see Table 1).³ A similar picture is seen in England, with

national dispensing data showing a 64% increase in the number of medications dispensed in primary care from 2001 to 2011.⁴

[INSERT Table 1]

The rise in polypharmacy is being driven by a number of factors. The population is ageing, and this in turn is associated with increased multimorbidity (the coexistence of multiple long term conditions in one individual). The number of people aged 85 years or over is set to increase at the fastest rate, more than doubling to 3.6 million between 2014 and 2039.⁵ Multimorbidity has become the norm in UK general practice, with over half of adults having two or more long term conditions and over three-quarters of general practice consultations involving patients with multimorbidity.⁶ Polypharmacy has been shown to have a clear association with both increasing age and number of long-term conditions⁷⁻⁹. A further factor is the trend to prescribe preventative medication to asymptomatic patients to prevent future disease and mortality.⁴ In the UK, this is partly due to a primary care payment-for-performance system (the Quality and Outcomes Framework, QOF) setting incentivised targets for GPs to treat common long-term conditions. The number of treatment guidelines has also increased in recent years, with most guidelines promoting commencement of new treatment and very few promoting stopping medications. Importantly, the evidence-base for many of these guidelines is derived from trials which often exclude elderly patients and patients with multimorbidity,¹⁰ and the recommendations seldom consider the cumulative impact of receiving treatment for more than one long-term condition or provide information about how to weigh up the risks and benefits of treatment.¹¹ Finally, UK general practice employs a system known as repeat prescribing, which enables patients to reorder long-term medications without requiring a further assessment by a clinician for long periods of time, and may contribute to polypharmacy. Although reviews of such prescriptions are usually undertaken at least annually, the effectiveness of these 'repeat' reviews in terms of rationalising treatment in the older, multimorbid population has been questioned.¹²

Harms of polypharmacy

Before outlining the harms of overprescribing, it is important to distinguish problematic from appropriate polypharmacy. Appropriate polypharmacy describes the necessary use of multiple evidence-based medications to improve the quality of a person's life and extend their life.⁴ We have previously demonstrated that the adverse consequences of polypharmacy are dependent on clinical context, and have cautioned against assumptions that polypharmacy is always harmful and represents poor care.^{13 14} There is also clear evidence for the benefits of some multiple medications, for example in the context of cardiovascular risk reduction.¹⁵

Problematic polypharmacy describes the situation where the risk of taking multiple medications outweighs the benefit.⁴ There is strong evidence that increased numbers of medicines are associated with various adverse consequences, much of this evidence coming from primary care. This includes a greater risk of high risk prescribing³, medication errors¹⁶, adverse drug reactions¹⁷, poor adherence¹⁸, and impaired quality of life.¹⁹ This is particularly relevant in frail and older people, in whom pharmacokinetic and pharmacodynamic changes may increase vulnerability to, and magnitude of, medication side effects.²⁰ Furthermore these people may have cognitive impairment, visual impairment or loss of dexterity, making management of complex medication regimens more difficult and potentially more prone to error and hazard.

The burden of treatment - the effort of looking after one's health and the impact that this has on general wellbeing²¹ - is also worth considering. Patients are responsible for co-ordinating their appointments, self-monitoring their conditions and finding ways to incorporate complex medical regimens into their everyday life. Taking a lot of drugs is a challenge for patients, particularly those from lower socio-economic groups who may have lower numeracy and literacy levels.²² Patients with multimorbidity are often required to attend separate appointments for each of their long term conditions and are at particular risk of treatment burden. Mair and colleagues argue for 'minimally disruptive medicine', whereby individual preference, multimorbidity and treatment burden are at the centre of clinical decisions.²³

Rationale for deprescribing and current approaches

Deprescribing has the potential to reduce pill burden, side effects, adverse drug events, medication errors, drug-drug interactions, and in doing so decrease health service utilisation and morbidity, and improve quality of life and other health outcomes for patients. Interestingly, however, although the harms of inappropriate polypharmacy are reasonably well established, there is a lack of direct evidence for the benefits of deprescribing in the general practice setting.

The deprescribing process

Scott and colleagues have outlined five steps in the deprescribing process: firstly, find out what medications the patient is taking and the indications; secondly, consider the overall risk of drug-induced harm; thirdly, assess each medication in terms of eligibility to be discontinued (e.g. lack of indication, unacceptable treatment burden, harm outweighs benefit); fourthly, prioritise which medications to stop ; and finally, implement a plan to stop the medication and monitor the consequences.²⁴ An earlier version of this model has been found to have face validity by hospital clinicians,²⁵ but it is also highly likely to be appropriate to the general practice setting. A review by Reeve and colleagues found that, out of ten published articles describing the deprescribing process or related elements, four included all five of these principles.²⁶ The review also found evidence supporting the different principles, although this was limited in nature. For particular medications, such as selective serotonin reuptake inhibitors, there is a risk of discontinuation reactions. The final stage of the deprescribing process – planning how to stop the medication and arranging follow-up – is likely to reduce this risk.

The Royal Pharmaceutical Society²⁷ outlines four guiding principles for medication optimisation (see Figure 1) – referred to in NICE Guidelines on Medicines Optimisation. These principles are understanding the patient's perspective, views and preferences; assessing the evidence base and cost-effectiveness of treatments; ensuring medicine safety; and establishing medication optimisation as part of routine practice. Although this model is not specifically focused on deprescribing, each of the principles is highly relevant to this process. In particular, patient involvement in decisions to change medications is a key feature.

[INSERT Figure 1]

A study in the South of England set out to explore the relationship between shared-decision-making and patient satisfaction, adherence and perceived practitioner empathy.²⁸ Prescribing decisions were common, occurring in 79% of consultations, but patients were given treatment options in only 21% of prescribing decisions and the patient's treatment preference was elicited in only 18% of decisions. Prescribing pharmacists were more likely to ask about patient preference than GPs and nurse prescribers. In consultations where more time was spent discussing treatment options, patient reported satisfaction, adherence and practitioner empathy was rated more highly, although the issue of deprescribing was not specifically studied.

Which patients?

Deprescribing should be routinely considered in the context of preventative medication use in patients with reduced life expectancy²⁹, and particularly so in palliative cancer care.³⁰ This is especially important given that 20% or more of palliative care patients are in receipt of inappropriate medications,³⁰ and is very pertinent in the general practice setting, with GPs providing end of life care to over 40% of patients.³¹ Increasingly it is recognised that people with non-cancer diseases such as severe COPD and heart failure should also be assessed for stepping down treatment and end of life considerations.³² People in the care home setting are also likely to be at a point where deprescribing is indicated. Nevertheless, deprescribing is relevant in other clinical situations as well, particularly given that over a third of older general practice patients experience inappropriate prescribing.³³ Objective measures of inappropriate prescribing (e.g. Beers' criteria³⁴ and the STOPP/START criteria³⁵) are a key primary care patient safety tool³⁶, and thus an important potential means of identifying individuals in whom deprescribing may be of value. A pragmatic approach of using a straightforward medication count potentially supplemented with indicators of problematic prescribing has been suggested in a King's Fund report.⁴ There is, however, a need for better approaches to identify situations where deprescribing is appropriate due to issues other than safety or end-of-life care.

Which health care professional?

The GP is ideally positioned to facilitate deprescribing, as they have access to the patient's full medical history (including current and drug history, diagnoses and investigations) to help inform medical decisions, and often an established relationship with the patient that imbues trust and supports shared decision making.³⁷ Decisions to stop medications are complex, particularly given that patients prescribed multiple medications often have a complex of long term conditions. As such, GPs who achieve good continuity of care with their patients are perhaps best placed to make deprescribing decisions. Indeed, we have found evidence that there is an association between improved continuity of care and decreased total prescribing burden (Payne RA, unpublished data). In current practice, a formal medication review with a GP is likely to provide the best opportunity to enact decisions around deprescribing, with more dedicated time than is available during the opportunistic circumstances of other appointment types. There is no single agreed approach to the medication review process or the points that should be covered when considering stopping medicines. However, an example of some potential issues that might be considered is shown in the Box. GPs seem readily able to add to medication but stopping treatments is often not considered at the same time; maybe it would be best if all new medication was only commenced as a trial of therapy and substitution always considered as an alternative to addition. In a US study of primary care physician medication review, discontinuation of medicines was only reported by a fifth of patients.³⁸ Evidence from hospital practice also suggests that recommendations to stop medications are not acted upon³⁹, and evidence from a community based older population found that a quarter of medications that had been stopped were reintroduced within the following 12 months.⁴⁰

[INSERT Box]

GP deprescribing decisions can also be informed by a range of other health care professionals, who may have more time than the GP to dedicate to a prescribing review. Primary care nurses often have a central role in managing common long-term conditions in general practice, and Brandt has discussed nurse-led approaches

to deprescribing, which are highly relevant to general practice.⁴¹ Community pharmacists also have a valuable role with respect to deprescribing. One particular intervention type is medication use reviews (MURs), structured adherence-centred reviews particularly focused on long-term conditions in patients subject to polypharmacy. There is evidence that clinical pharmacist medication reviews can reduce numbers of prescribed drugs⁴², and the PINCER trial showed that a pharmacist-led intervention in general practice could reduce hazardous prescribing.⁴³ However, the specific evidence for MURs by community pharmacists is limited.⁴⁴ There has been a recent call to increase the role of clinical or practice pharmacists to work directly in general practice to address unmet workforce demands⁴⁵, and pilot work is being undertaken to explore this in England.⁴⁶ Finally, although the continuing provision of medication for long-term problems is usually managed by the GP, hospital clinicians, and in particular clinical pharmacists and generalist physicians (e.g. geriatricians), can contribute to deprescribing, and hospital-based interventions to identify and stop unnecessary medication for elderly inpatients have indeed been found to be effective.⁴⁷

Guidelines

In the UK, clinical guidance has been published by both Wales and Scotland, detailing approaches to polypharmacy of which medication review is considered central.^{48 49} Both of these identify a number of important clinical areas to focus on, chosen largely on the basis of expert opinion. Other priorities have been set by survey work and expert panel opinion undertaken by Farrell and colleagues which found key classes of medications to include benzodiazepines, atypical antipsychotics, statins, tricyclic antidepressants and proton pump inhibitors⁵⁰. Lindsay et al have also developed and validated a deprescribing guideline specifically for palliative cancer patients.⁵¹

Treating the patient as central to the medication optimisation process is a key principle outlined by the National Institute for Health and Care Excellence.² Conklin and colleagues have published a protocol for a study to investigate improving implementation of deprescribing guidelines.⁵²

Trial evidence

Despite the existence of systems that theoretically support deprescribing as well as the development of clinical guidance, trial evidence for deprescribing processes and improved outcome is relatively lacking in primary care. An Australian feasibility study by Reeve et al, based on the five-step process outlined above, tested a patient-centred intervention to deprescribe proton pump inhibitors (PPIs) for adults with polypharmacy.⁵³ The study found the process was acceptable and could reduce inappropriate PPI use in a small proportion of patients, but there were important barriers to implementation. A Canadian trial of a community-pharmacy based patient-education intervention demonstrated effectiveness at reducing benzodiazepine use in older adults⁵⁴. A systematic review of medication withdrawal found four trials supporting the safe reduction of diuretic therapy (albeit not in heart failure) and some improvements following reduction in psychotropic medication.⁵⁵ Antipsychotic withdrawal has also been found to be safe in the majority of people with dementia.⁵⁶ Despite hypertension being the most prevalent long-term condition in older people, trials of antihypertensive withdrawal are lacking, although prospective observational studies suggest many patients remain normotensive.⁵⁵

Barriers and facilitators to deprescribing

A range of studies have explored patients, carers and clinicians attitudes towards deprescribing.

Patient and carer views

Certainly, overall, patients are supportive of the idea of deprescribing. The term deprescribing may not be acceptable to some patients, however, who might associate it with money saving.⁵⁷ A survey of Australian care homes found 40% of residents expressed a wish to reduce their medications with over three-quarters willing to do so if deemed possible by their doctor.⁵⁸ A further study of older ambulatory-care adults found over 90% were willing to stop one or more medications.³⁷ A systematic review found that patient-reported barriers to deprescribing included disagreement over the appropriateness of stopping

medication, lack of a process to stop medication and fear of stopping medications.⁵⁹ Enablers to deprescribing were agreement that it was appropriate to stop the medication, a system to stop or taper down the medication, and a dislike of taking medications.

Clinician views

Anderson et al conducted a systematic review and thematic synthesis of qualitative studies that explored prescribers' perceived barriers and enablers to minimising potentially inappropriate medications for adults with long term conditions.⁶⁰ Twenty-one studies were included and most focused on the views of primary health care physicians towards managing elderly patients. Factors that influenced decisions of whether or not to deprescribe were grouped as being intrinsic to the prescriber (e.g. their beliefs, attitudes, knowledge, skills and behaviour) or extrinsic to the prescriber (e.g. the patient, work setting, health system and cultural factors).

A substudy of the ECSTATIC trial investigated attitudes to stopping preventive cardiovascular medication.⁶¹ GPs reported that their decision to stop unnecessary medication was influenced by their perception that specialists would disapprove of them stopping medications. A study in New Zealand investigated GPs' views on deprescribing in multimorbid elderly patients.⁶² Considerable variation in opinions on deprescribing were observed between GPs, and the authors proposed better guidelines for stopping medicines in order to reduce such variation.

A survey of physicians specialising in care of the elderly attitudes to deprescribing found that limited life expectancy, cognitive impairment and pill burden were important drivers to deprescribing.⁶³

In a recent South Australian study, GPs ranked evidence for deprescribing and patient/family communication as the most important factors to consider when considering stopping medications. This differed from other health care professionals, with nurses prioritising doctors' receptivity to deprescribing and patient advocacy, and pharmacists prioritising clinical appropriateness and identifying patients' goals.⁶⁴

Special groups: care home residents, palliative care patients and the very elderly

A study in Australia sought to explore the views of care home residents, relatives and care professionals towards polypharmacy and deprescribing.⁶⁵ Care home residents reported that taking lots of medication was burdensome but they lacked understanding of what the medications were for and of potential harms caused by the medication. They trusted their GP and were willing to accept changes, including stopping medications, if they were suggested by their GP. Barriers to deprescribing reported by GPs included a lack of time, poor medical record keeping for care home residents, limited training of care home workers, and difficulties with collaborating with care home workers and pharmacists.

A qualitative study in the United States to explore palliative care patient's, carers and health care professionals views on stopping unnecessary medications, such as statins, found that patients were accepting of the concept of stopping preventative medications once they had come to terms with the fact that their illness was life-limiting.⁶⁶ The authors concluded that it was important to explore patient's expectations of their illness and treatment, and to time discussions about stopping medications appropriately.

A study of Dutch GP's views on deprescribing in the very elderly found that GP's broadly categorized medications into 'symptomatic medication' and 'preventative medication'.⁶⁷ Deciding to deprescribe preventative medication was seen as more difficult for GPs because there was a lack of guidance about the risk/benefit ratio. GPs believed that patients did not have a problem taking multiple medications and were worried that by stopping medication, patients would feel that they were giving up on them. They were reluctant to discuss issues about approaching the end of life with patients. Other barriers to deprescribing included having to comply with guidelines to increase medications.

Recommendations for the future

Guthrie et al make several suggestions of how guidelines could better inform treatment of people with multimorbidity.⁶⁸ The first is to increase the number of cross-referenced guidelines. The paper cites an existing National Institute for Health

and Care Excellence (NICE) guideline that provides advice on choice of antidepressant medication depending on coexistence of physical long term conditions and co-prescribing. A second recommendation is for existing quick reference guidelines to contain more information about the magnitude of the likely benefit, some information about the potential harm of medication, and an idea of how long the patient needs to take the medication to benefit from it. A final suggestion is to improve the evidence base by including elderly patients with multimorbidity in clinical trials.

Although there is good evidence that polypharmacy can be harmful to patients, there is a lack of evidence for the benefit of stopping medications, particularly within a primary care setting. Trial evidence for deprescribing is poor. Further research is needed to determine whether stopping potentially inappropriate medications, such as antihypertensive medication and proton pump inhibitors, improves health outcomes for patients. There is some evidence that interventions to improve appropriate prescribing of medication reduce pill burden but studies have been inadequately powered to investigate clinical outcomes, such as health related quality of life and health service utilisation.

In the UK, NICE have recently published a draft guideline on multimorbidity, which acknowledges the need to stop medicines as part of developing an individualised management plan for people with multimorbidity.⁶⁹ An accompanying database comparing risks and benefits of treatments for common long-term medications has also been made available. Such guidance may be of value in empowering GPs to deprescribe, but effective implementation of the guidance will be essential.

Conclusion

Polypharmacy is a major challenge for modern health care systems, driven by aging, increasingly multimorbid populations, and with growing adherence to protocol-driven practice and the use of evidence-based guidelines which focus on single-diseases. Safe approaches for dealing with problematic polypharmacy are essential with medication reviews being an important component; deprescribing is one approach to rationalisation of medicines to minimise risk and achieve better outcomes. GPs and pharmacists are ideally placed to carry this out. Guidance to support prescribers in

the reduction of medications is becoming more readily accessible, which follow a number of well-described principles and ensure that patient involvement with shared-decision making is central to the process. However, clinical trial evidence of effectiveness and safety is still required, and there remain numerous patient and clinician barriers to the successful implementation of deprescribing strategies.

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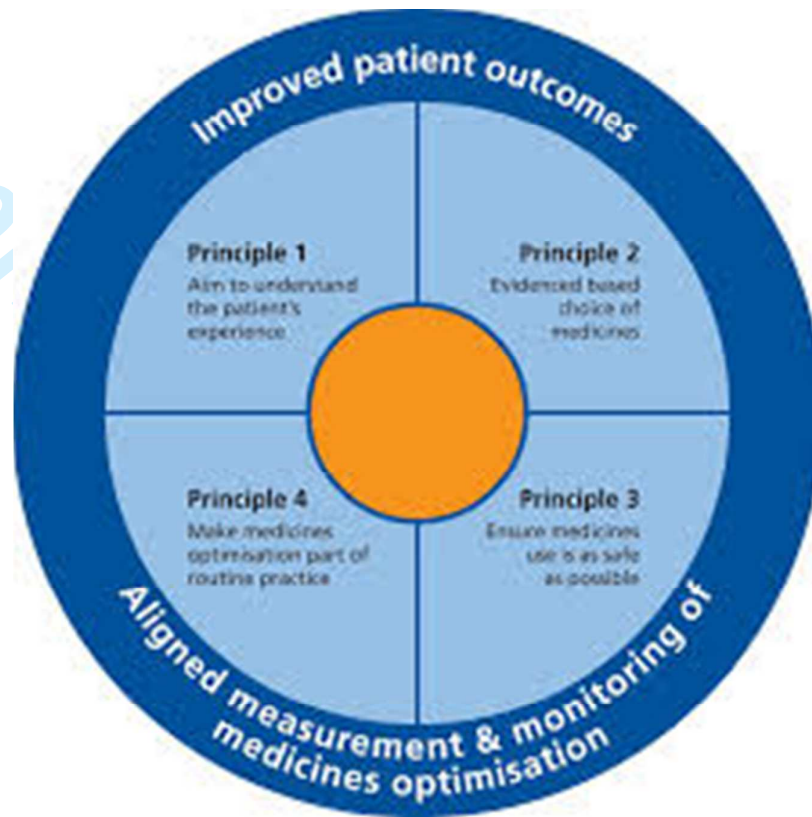
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Table 1: International variations in prevalence of polypharmacy in community and primary care settings

Study	Setting	Age of participants	Number of medications	Rates of polypharmacy	Notes
Hovstadius, 2008 ⁹	Sweden, primary care	Total population	≥ 5	11.1%	Rates of polypharmacy increased with age
			≥ 10	2.4%	
		60-69 years	≥ 5	21.4%	
			≥ 10	4.1%	
		≥ 80 years	≥ 5	52.3%	
			≥ 10	15.5%	
Qato, 2008 ⁷⁰	US, community	57 to 85 years	≥ 5	29%	Rates of polypharmacy increased with age and female gender
Dong, 2010 ⁷¹	Rural China, primary health care clinics	Total population	≥ 5	5.8%	Village doctor workload and government subsidies influenced the rates of polypharmacy.
Richardson, 2012 ⁷²	Ireland, community	≥ 50 years	≥ 5	19%	Rates of polypharmacy was greatest in those with self-reported hypertension, hypercholesterolaemia, arthritis, chronic pain and diabetes
			≥ 10	2%	

Oliveira, 2012 ⁷³	Brazil, primary care	≥ 60 years	≥ 4	64.5%	Small study with 142 participants
Payne ⁷ , 2014	Scotland, primary care	Total population	4-9	16.9%	Polypharmacy increased with the number of long term conditions.
			≥ 10	4.6%	
		60-69 years	4-9	28.6%	
			≥ 10	7.4%	
		≥ 80 years	4-9	51.8%	
			≥ 10	18.6%	

Figure 1: Summary of the four principles of medicines optimisation²⁷



Box: Practical framework to guide stopping medication⁷⁴

General advice

- Always regard starting a treatment as a trial
- Always regard stopping a treatment as a trial
- Unless there are significant adverse drug effects there is usually plenty of time to
 - stop or taper medicines one after another
- Consider discussing with other clinicians and develop a clinical management plan
 - to aid continuity.

Recognise the need to stop a medicine

- Any new problems or symptoms? Could these be related to adverse effects?
- Review the patient's and/or carer's concerns about the medicine
- Consider the preferences of the patient (and/or carer)
- Is there still a clear clinical indication for the treatment (often this may be unclear
 - or forgotten)
- Has the clinical condition of the patient changed?
- Have the evidence or guidelines changed since a drug was initiated?
- If more than one medicine can be stopped, which one should be stopped first?

Reduce or stop one medicine at a time

- As much as possible reduce or stop one medicine at a time. If problems develop it is then easier to know what the likely cause may be
- Taper medicines when appropriate – examples where this may be particularly important include: opioids, antidepressants, antipsychotics, beta-blockers, hypnotics
- Give patients (and/or carers) advice on any symptoms that might be expected when drugs are withdrawn. Often reassurance is all that is needed
- If in doubt taper, as it is safer
- For many medicines the first step in tapering is to halve the dose
- Establish if the patient's symptoms, conditions or risks can be managed with a lower dose or whether the medicine can be stopped completely
- Once tapering has begun, ask the patient to note any symptoms that may suggest a more gradual withdrawal is required.

Check for benefit or harm after each medicine has been stopped

- Ask the patient if any changes or problems have occurred after a medicine has been stopped
- Beneficial effects may indicate that the decision to reduce or stop the medicine was correct
- If symptoms of the initial condition return and are troublesome, despite gradual tapering, then it may be that the medicine cannot be stopped completely.